

Microfabricated, 94 GHz, 25 W, Helical Traveling Wave Tube, Phase I

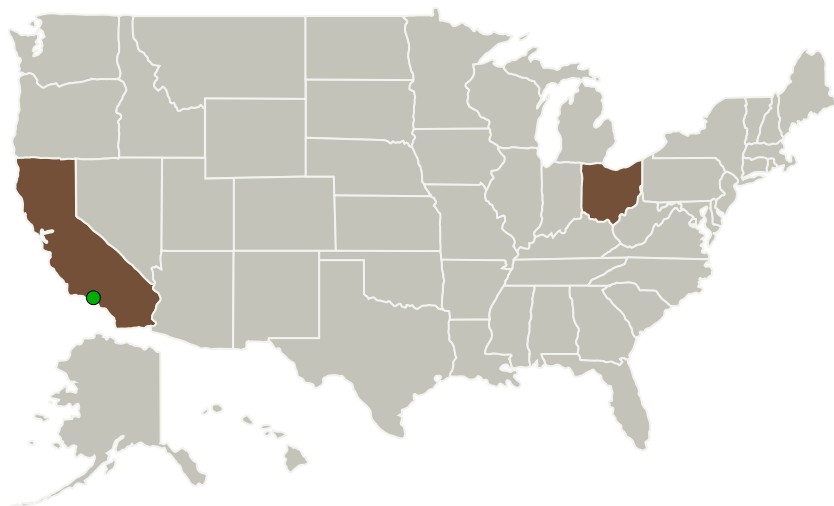



Completed Technology Project (2011 - 2011)

Project Introduction

Teraphysics Corporation proposes to design and develop a microfabricated, 94 GHz, 25 W traveling wave tube (TWT) with 53% efficiency for NASA applications. In Phase I, we plan to prove feasibility by completing electrical designs of all major components. In Phase II, we would complete the mechanical design, fabrication, assembly, and test of a laboratory model. To successfully complete this program, Teraphysics will apply our expertise in vacuum electronics focusing in mm-wave and THz devices; expertise in high level, three-dimensional, computational modeling; novel, patent protected, helical TWT designs for mm-wave and THz operation; and novel, patent protected, helical TWT microfabrication techniques. In Phase I, the technology will advance from TRL 2 to 3.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Teraphysics Corporation	Lead Organization	Industry	Cleveland, Ohio
 Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



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Primary U.S. Work Locations

California

Ohio

Project Transitions

 **February 2011:** Project Start

 **September 2011:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140193>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Teraphysics Corporation

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

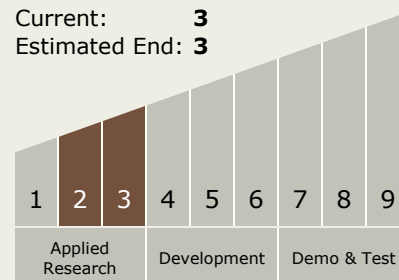
Carlos Torrez

Principal Investigator:

Carol L Kory

Technology Maturity (TRL)

Start: 2
Current: 3
Estimated End: 3



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Technology Areas

Primary:

- TX02 Flight Computing and Avionics
 - └ TX02.1 Avionics Component Technologies
 - └ TX02.1.5 High Performance Field Programmable Gate Arrays

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System